

We claim:

1. A composite element which has the following layer structure:
 - (i) from 2 to 20 mm of metal,
 - (ii) from 10 to 300 mm of polyisocyanate polyaddition products obtainable by reacting (a) isocyanates with (b) compounds reactive toward isocyanates in the presence of at least one inorganic acid, and also of at least one catalyst (d),
 - (iii) from 2 to 20 mm of metal.
2. A composite element as claimed in claim 1 in which the inorganic acid present comprises phosphoric acid.
3. A composite element as claimed in claim 1 in which (d) comprises tertiary amines and/or metal catalysts.
4. A composite element as claimed in claim 1 in which (b) comprises polymer polyols.
5. A composite element as claimed in claim 1 in which (a) comprises MDI isocyanate components with functionality greater than 2.
6. A composite element as claimed in claim 1 obtainable by reaction in the presence of from 1 to 50% by volume of gases (c).
7. A composite element as claimed in claim 1 obtainable by reaction in the presence of (f) blowing agents.
8. A composite element which has the following layer structure:
 - (i) from 2 to 20 mm of metal,
 - (ii) from 10 to 300 mm of polyisocyanate polyaddition products with density from 3.0 to 1100 kg/m³ obtainable by reacting (a) isocyanates with (b) compounds reactive toward isocyanates in the presence of at least one inorganic acid, (d) catalysts, and also, where appropriate, of (f) blowing agents, and of from 1 to 50% by volume, based on the volume of the

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polyisocyanate polyaddition products, of at least one gas (c), and/or of (e) auxiliaries and/or additives, (iii) from 2 to 20 mm of metal.

- 5 9. A process for producing composite elements as claimed in any of claims 1 to 8, which comprises preparing polyisocyanate polyaddition products (ii) between (i) and (iii) by reacting (a) isocyanates with (b) compounds reactive toward isocyanates in the presence of at least one inorganic acid, and also of at least one catalyst (d), where the polyisocyanate polyaddition products adhere to (i) and (iii).
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10. The use of composite elements as claimed in any of claims 1 to 8 as structural components in ship building or in civil engineering works.
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11. A ship or an item of civil engineering work comprising composite elements as claimed in any of claims 1 to 8.

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